

SOLICITATION, OFFER AND AWARD		1. THIS CONTRACT IS A RATED ORDER UNDER DPAS (15 CFR 700)		RATING D0-C9	PAGE OF PAGES 1 22
2. CONTRACT NUMBER	3. SOLICITATION NUMBER N00173-07-R-JS01	4. TYPE OF SOLICITATION <input type="checkbox"/> SEALED BID (IFB) <input checked="" type="checkbox"/> NEGOTIATED (RFP)	5. DATE ISSUED 04/13/07	6. REQUISITION/PURCHASE NUMBER 63-0016-07	
7. ISSUED BY Contracting Officer Naval Research Laboratory Attn: Code 3220.MS Washington, D.C. 20375-5326		CODE N00173	8. ADDRESS OFFER TO (If other than Item 7)		

NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".

SOLICITATION

9. Sealed offers in original and 2 copies for furnishing the supplies or services in the Schedule will be received at the place specified in Item 8, or if handcarried, in the depository located in Bldg. 222, Room 115 until 4:00 pm local time 05/14/07
(Hour) (Date)

CAUTION - LATE Submissions, Modifications, and Withdrawals: See Section L, Provision No. 52.214-7 or 52.215-1. All offers are subject to all terms and conditions contained in this solicitation.

10. FOR INFORMATION CALL:	A. NAME Jamie Brown	B. TELEPHONE (NO COLLECT CALLS)		C. E-MAIL ADDRESS jamie.brown@nrl.navy.mil
		AREA CODE 202	NUMBER 767	EXT. 4597

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OFFER (Must be fully completed by offeror)

NOTE: Item 12 does not apply if the solicitation includes the provisions at 52.214-16, Minimum Bid Acceptance Period.

12. In compliance with the above, the undersigned agrees, if this offer is accepted within _____ calendar days (60 calendar days unless a different period is inserted by the offeror) from the date for receipt of offers specified above, to furnish any or all items upon which prices are offered at the price set opposite each item, delivered at the designated point(s), within the time specified in the schedule.

13. DISCOUNT FOR PROMPT PAYMENT (See Section I, Clause No. 52.232-8)	10 CALENDAR DAYS (%)	20 CALENDAR DAYS (%)	30 CALENDAR DAYS (%)	CALENDAR DAYS (%)
14. ACKNOWLEDGMENT OF AMENDMENTS (The offeror acknowledges receipt of amendments to the SOLICITATION for offerors and related documents numbered and dated):	AMENDMENT NO.	DATE	AMENDMENT NO.	DATE

15A. NAME AND ADDRESS OF OFFEROR	CODE	FACILITY	16. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER (Type or print)
15B. TELEPHONE NUMBER	AREA CODE	NUMBER	EXT.
15C. CHECK IF REMITTANCE ADDRESS IS DIFFERENT FROM ABOVE - ENTER SUCH ADDRESS IN SCHEDULE.		<input type="checkbox"/>	17. SIGNATURE
			18. OFFER DATE

AWARD (To be completed by Government)

19. ACCEPTED AS TO ITEMS NUMBERED	20. AMOUNT	21. ACCOUNTING AND APPROPRIATION
22. AUTHORITY FOR USING OTHER THAN FULL AND OPEN COMPETITION: <input type="checkbox"/> 10 U.S.C. 2304(c)) <input type="checkbox"/> 41 U.S.C. 253(c) ()		23. SUBMIT INVOICES TO ADDRESS SHOWN IN (4 copies unless otherwise specified)
24. ADMINISTERED BY (If other than Item 7)	CODE	25. PAYMENT WILL BE MADE BY
26. NAME OF CONTRACTING OFFICER (Type or print)		27. UNITED STATES OF AMERICA
		(Signature of Contracting Officer)
		28. AWARD DATE

IMPORTANT - Award will be made on this Form, or on Standard Form 26, or by other authorized official written notice.

**PART I - THE SCHEDULE
SECTION B
SUPPLIES OR SERVICES AND PRICES/COSTS**

B-1 SUPPLIES/SERVICES AND COSTS

ITEM NUMBER	SUPPLIES/SERVICES	ESTIMATED COST	FIXED FEE	ESTIMATED COST PLUS FIXED FEE
0001	The Contractor shall provide research and development of novel materials in accordance with the Statement of Work, Attachment (1).	\$	\$	\$
0002	Data in accordance with Exhibit A (DD 1423)	* NSP	* NSP	* NSP
TOTAL ESTIMATED COST PLUS FIXED FEE		\$	\$	\$

* *Not Separately Priced*

NOTICE TO OFFERORS: In addition to inserting the estimated cost and fixed fee for the base year above, the estimated cost and fixed fee for each optional extension of the term of the contract are to be inserted in Section H.

**SECTION C
DESCRIPTION/SPECIFICATIONS/STATEMENT OF WORK**

C-1 STATEMENT OF WORK

The work and services to be performed hereunder shall be subject to the requirements and standards contained in Attachment (1), Statement of Work, with Exhibit A, Contract Data Requirements List, and all other Attachments cited in Section J, which are incorporated by reference into Section C.

C-2 REQUIREMENTS FOR ON-SITE CONTRACTORS

For those portions of the work under this contract performed at any NRL site, the contractor shall comply with the Requirements for On-Site Contractors dated 27 March 2007 which are hereby incorporated by reference. The full text is available at <http://heron.nrl.navy.mil/contracts/12onsite.htm>

**SECTION D
PACKAGING AND MARKING**

D-1 PACKAGING AND MARKING

Preservation, packaging, packing and marking of all deliverable contract line items must conform to normal commercial packing standards to assure safe delivery at destination.

**SECTION E
INSPECTION AND ACCEPTANCE**

E-1 INSPECTION AND ACCEPTANCE CLAUSES INCORPORATED BY REFERENCE

FAR CLAUSE TITLE

52.246-9 - Inspection Of Research And Development (Short Form) (APR 1984)

DFARS CLAUSE TITLE

252.246-7000 - Material Inspection And Receiving Report (MAR 2003)

E-2 INSPECTION AND ACCEPTANCE

Inspection and acceptance of the final delivery will be accomplished by the Technical Manager (TM) or Contracting Officer Representative (COR) designated in Section G of this contract. Inspection and acceptance will be performed at the Naval Research Laboratory, Washington DC 20375-5320.

**SECTION F
DELIVERIES OR PERFORMANCE**

F-1 DELIVERIES OR PERFORMANCE CLAUSES INCORPORATED BY REFERENCE:

FAR CLAUSE TITLE

52.242-15 - Stop-Work Order (AUG 1989) - Alternate I (APR 1984)

52.247-34 - F.O.B. Destination (NOV 1991)

F-2 PERIOD AND PLACE OF PERFORMANCE

(a) The term of this contract is from date of contract award through twelve (12) months thereafter, with four options that will extend the period of performance for an additional twelve (12) months each, if exercised.

(b) The principal place of performance of this contract shall be the Naval Research Laboratory, Washington, D.C.

SECTION G
CONTRACT ADMINISTRATION DATA

G-1 PROCURING OFFICE REPRESENTATIVE

In order to expedite administration of the contract, the Administrative Contracting Officer (ACO) will direct inquiries to the appropriate office listed below. Please do not direct routine inquiries to the person listed in Item 20A on Standard Form 26.

Security Matters- Contracting Officer for Security, Code 1221, (202) 767-2240, DSN 297-2240, email security-group@nrl.navy.mil

Safety Matters- Head Safety Branch, Code 3540, (202) 767-2232, DSN 297-2232, email safety@nrl.navy.mil

Patent Matters-Associate Counsel (Intellectual Property), Code 1008.2, (202) 404-1552, DSN 297-1552, email patents@nrl.navy.mil

Release of Data-Public Affairs Officer, Code 1030 (202) 767-2541, DSN 297-2541, email publicaffairs@nrl.navy.mil

G-2 CONTRACTING OFFICER'S REPRESENTATIVE (COR) - FUNCTIONS AND LIMITATIONS

* is hereby designated the cognizant COR who will represent the Contracting Officer in the technical monitoring and administration of this contract. In accordance with Section E, the COR will accomplish inspection and acceptance of deliverables under this contract. The COR is not otherwise authorized to make any representations or commitments of any kind on behalf of the Contracting Officer or the Government. The COR does not have the authority to alter the Contractor's obligations or change the specifications in the contract. If, as a result of technical discussions, it is desirable to alter contract obligations or the statement of work, a modification must be issued in writing and signed by the Contracting Officer. Unless terminated sooner, this appointment is effective for the period of performance of this contract including any options, if exercised. COR authority may not be redelegated. No change in COR assignment shall be made without written notice by the Contracting Officer, who will modify the contract to reflect the change of COR assignment.

*(* To be completed at time of award)*

G-3 TECHNICAL DIRECTION MEMORANDUM (TDM)

- (a) For the purposes of this clause, technical direction includes the following:
- (1) Direction to the Contractor which shifts work emphasis between work areas or tasks, requires pursuit of certain lines of inquiry, fills in details or otherwise describes work which will accomplish the objectives described in the statement of work;
 - (2) Guidelines to the Contractor, which assist in interpretation of drawings, specifications or technical portions of, work description.
- (b) Technical instructions must be within the scope of work stated in the contract. Technical instructions may not be used to:
- (1) Assign additional work under the contract;
 - (2) Direct a change as defined in the contract clause entitled "Changes";

- (3) Increase or decrease the estimated contract cost, the fixed fee, or the time required for contract performance; or
- (4) Change any of the terms, conditions or specifications of the contract
- (c) The TDM shall be written by the Contracting Officer's Representative (COR), with the original given to the Contractor and a copy retained in the CORs file. Technical direction may be issued orally only in emergency situations. If technical direction is issued orally, a TDM must follow within two (2) working days from the date of the oral direction. Amendments, corrections, or changes to TDMs shall also be in written format and shall include all the information set forth in paragraph (e) below.
- (d) A TDM shall be considered issued when the Government deposits it in the mail, or if transmitted by other means, when it is physically delivered to the contractor.
- (e) TDMs shall include, but not be limited to, the following information:
 - (1) Date of TDM,
 - (2) Contract Number,
 - (3) Reference to the relevant portion or item in the Statement of Work,
 - (4) The specific technical direction or clarification, and
 - (5) The signature of the COR.
- (f) CORs shall retain all files containing TDMs for a period of two (2) years after the final contract completion date.
- (g) The only individual authorized in any way to amend or modify any of the terms of this contract shall be the Contracting Officer. When, in the opinion of the Contractor, any technical direction calls for effort outside the scope of the contract or inconsistent with this special provision, the Contractor shall notify the Contracting Officer in writing within ten (10) working days after its receipt.

G-4 SUBCONTRACTORS/CONSULTANTS

- (a) Advance notification or requests for consent pursuant to the contract clause entitled "Subcontracts" (FAR 52.244-2) shall be directed to the cognizant administrative contracting officer (ACO).
- (b) The following subcontractors/consultants have been identified in the Contractor's proposal as necessary for performance of this contract:

Subcontractor/Consultant Name	Estimated Cost
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(Paragraph (b) will be included and filled in at time of award if subcontractor/consultants are proposed by the successful offeror)

G-5 INCREMENTAL FUNDING

Pursuant to the Limitation of Funds clause (FAR 52.232-22), the total amount allotted to this contract is \$* and it is estimated that this amount is sufficient for contract performance through * .
*(*this provision will be included and completed at time of award, if applicable)*

G-6 INFORMATIONAL SUBLINE ITEMS

It is anticipated that the research and development services performed under this contract will be paid for from multiple sources of funds. Informational subline items will be established as necessary to identify each accounting citation classification.

G-7 PAYMENT INSTRUCTIONS FOR MULTIPLE ACCOUNTING CLASSIFICATION CITATIONS (COST-REIMBURSEMENT)

If there is more than one ACRN within a contract line item, the payment office will make payment using the ACRN(s) cited on the contractor's invoice.

G-8 PAYMENT AND VOUCHER INSTRUCTIONS

In accordance with the contract clause, *Electronic Submission of Payment Requests* (DFARS 252.232-7003), the contractor must submit requests for payment electronically in the Wide Area Workflow (WAWF). It may be accessed at its homepage <https://wawf.eb.mil/>. If the contractor has not registered with WAWF, instructions for doing so may be accessed at: <https://wawf.eb.mil/vreg.htm>. The designated Electronic Business (EB) point of contact in the Central Contractor Registration (CCR) is the person responsible for activating the company's CAGE code in WAWF by calling 1-866-618-5988.

The following information is applicable to vouchers submitted under this contract using WAWF:

Under "Create New Document" select "Cost Voucher". When you enter the contract number, some of the other fields in the document may fill out automatically.

Use the appropriate Item Number stated in Section B of the contract (e.g., 0001, 0002 or 0001AA, 0001AB, etc).

If the contract contains multiple accounting classification reference numbers (ACRNs), the ACRN(s) from which payment is to be made must be cited on the voucher. If more than one ACRN is cited, the voucher must indicate the amounts to be paid from each. Information may be obtained from the COR to assist the contractor in determining the appropriate ACRNs from which payment is to be made.

ROUTING TABLE DATA REQUIRED FOR SUBMISSION OF INVOICE TO WAWF	
Document Type	Cost Voucher
Contract Number	N00173-07-
Issued By DoDAAC	N00173
Admin By DoDAAC	
Pay DoDAAC	
LPO	N00173
Ship To DoDAAC	N00173 Extension
Service Acceptor	N00173 Extension
DCAA Auditor DoDAAC	
CAGE Code	

IMPORTANT: When submitting vouchers using WAWF, utilize the **"Send More Email Notifications"** function in WAWF. This additional notification is important to ensure the Government Acceptor is aware that the invoice documents have been submitted into the WAWF system.

Send More Email Notifications	
Acceptor email	@nrl.navy.mil

Pursuant to DFARS 242.803(b)(i)(c), if the cognizant Government auditor has notified the contractor of its authorization to do so, the contractor may submit vouchers under this contract direct to the payment office. Such authorization does not extend to the first and final vouchers.

For assistance with the WAWF system, you may contact the Navy WAWF Assistance Line : 1-800-559-WAWF(9293).

SECTION H SPECIAL CONTRACT REQUIREMENTS

H-1 TYPE OF CONTRACT

This is a *

*(*To be completed at time of award)*

H-2 ONR 5252.216-9706 - LEVEL OF EFFORT (DEC 88)

- (a) The Contractor agrees to provide the total level of effort specified in the next sentence in performance of the work described in this contract. The total level of effort for performance of this contract shall be 21,840 total hours of direct labor for the Basic award, 21,840 for each of the four Option Years, if exercised, including subcontractor direct labor for those subcontractors specifically identified in the Contractor's proposal as having hours included in the proposed level of effort. A breakdown of labor categories and hours is set forth in paragraph (k) below.
- (b) The level of effort for this contract shall be expended at an average rate of 1,820 hours per month. It is understood and agreed that the rate of hours per month may fluctuate in pursuit of the technical objective, provided such fluctuation does not result in the use of the total hours of effort prior to the expiration of the term of the contract.
- (c) The Contractor is required to notify the Contracting Officer when any of the following situations occur, or are anticipated to occur: If during any three consecutive months the monthly average is exceeded by 25% or, if at any time it is forecast that during the last three months of the contract less than 50% of the monthly average will be used during any given month; or, when 85% of the total level of effort has been expended.
- (d) If, during the term of the contract, the Contractor finds it necessary to accelerate the expenditure of direct labor to such an extent that the total hours of effort specified would be used prior to the expiration of the term, the Contractor shall notify the Contracting Officer in writing, setting forth the acceleration required, the probable benefits which would result, and an offer to undertake the acceleration at no increase in the estimated cost or fixed fee together with an offer setting forth a proposed level of effort, cost breakdown, and proposed fixed fee for continuation of the work until expiration of the term hereof. The offer shall provide that the work proposed will be subject to the terms and conditions of this contract and any additions or changes required by then current law, regulations, or directives, and that the offer, with a written notice of acceptance by the Contracting Officer, shall constitute a binding contract. The Contractor shall not accelerate any effort until receipt of such written approval by the Contracting Officer. Any agreement to accelerate will be formalized by contract modification.

(e) The Contracting Officer may, by written order, direct the Contractor to accelerate the expenditure of direct labor such that the total hours of effort specified in paragraph (a) above would be used prior to the expiration of the term. This order shall specify the acceleration required and the resulting revised term. The Contractor shall acknowledge this order within five days of receipt.

(f) If the total level of effort specified in paragraph (a) above is not provided by the Contractor during the term of this contract, the Contracting Officer shall either (i) reduce the fixed fee of this contract as follows:

$$\text{Fee Reduction} = \text{Fixed Fee} \times \frac{(\text{Required LOE Hours} - \text{Expended LOE Hours})}{\text{Required LOE Hours}}$$

or (ii) subject to the provisions of the clause of this contract entitled "Limitation of Cost," require the Contractor to continue to perform the work until the total number of hours of direct labor specified in paragraph (a) shall have been expended, at no increase in the fixed fee of this contract.

(g) In the event the government fails to fully fund the contract in a timely manner, the term of the contract may be extended accordingly with no change to cost or fee. If the government fails to fully fund the contract, the fee will be adjusted in direct proportion to that effort which was performed.

(h) Notwithstanding any of the provisions in the above paragraphs, the Contractor may furnish hours up to five percent in excess of the total hours specified in paragraph (a) above, provided that the additional effort is furnished within the term hereof, and provided further that no increase in the estimated cost or fixed fee is required, and no adjustment in the fixed fee shall be made provided that the Contractor has delivered at least 95% of the level of effort required in paragraph (a) above.

(i) It is understood that the mix of labor categories provided by the Contractor under the contract, as well as the distribution of effort among those categories, may vary considerably from the initial mix and distribution of effort which was estimated by the government or proposed by the Contractor.

(j) Nothing herein shall be construed to alter or waive any of the rights or obligations of either party pursuant to the Clause entitled "Limitation of Costs" or "Limitation of Funds," either of which clauses as incorporated herein applies to this contract.

(k) The anticipated breakdown by labor category of the total level of effort is as follows:

<u>Labor Category</u>	<u>Labor Hours</u> <u>Basic Award and each</u> <u>Option, if exercised</u>
Research Physicist	2,080
Senior Research Physicist	2,080
Senior Research Physicist/Engineer	2,080
Senior Mechanical/Materials Research Engineer	2,080
Mechanical/Materials Engineer	2,080
Technician	2,080
Senior Research Physicist	1,040
Research Physicist	2,080
Senior Research Physicist	1,040
Senior Research Physicist	1,040
Technician	2,080
Research Physicist	2,080
TOTAL	21,840

H-3 ONR 5252.235-9714 - REPORT PREPARATION (JUL 2005)

Scientific or technical reports prepared by the Contractor and deliverable under the terms of this contract will be prepared in accordance with format requirements contained in ANSI/NISO Z39.18-2005, Scientific and Technical Reports: Elements, Organization, and Design.

[NOTE: All NISO American National Standards are available as free, downloadable pdf(s) at <http://www.niso.org/standards/index.html> . NISO standards can also be purchased in hardcopy form from NISO Press Fulfillment, P. O. Box 451, Annapolis Junction, MD 20701-0451 USA. Telephone U.S. and Canada: (877) 736-6476; Outside the U.S. and Canada: 301-362-6904 fax: 301-206-9789.]

H-4 ELECTRONIC AND INFORMATION TECHNOLOGY (EIT)

In accordance with Section 508 of the Rehabilitation Act of 1973 (29 U.S.C. 794d), all EIT supplies and services provided under this contract must comply with the applicable accessibility standards issued by the Architectural and Transportation Barriers Compliance Board at 36 CFR part 1194 (see FAR Subpart 39.2). Electronic and information technology (EIT) is defined at FAR 2.101.

H-5 OPTION TO EXTEND THE TERM OF THE CONTRACT

This contract shall be renewable at the unilateral option of the Government by the Contracting Officer giving written notice of renewal to the Contractor within the existing term of the contract. The Government may exercise its option to renew the contract a total of four times and each such renewal shall extend the term of the contract by twelve (12) months. The Contractor agrees that performance under each such renewal shall be accomplished in accordance with all of the terms and conditions of this contract and at the estimated cost and fixed fee set forth below:

First Option

Estimated Cost:	\$
Fixed Fee:	\$
Estimated Cost Plus Fixed Fee:	\$

Second Option

Estimated Cost:	\$
Fixed Fee:	\$
Estimated Cost Plus Fixed Fee:	\$

Third Option

Estimated Cost:	\$
Fixed Fee:	\$
Estimated Cost Plus Fixed Fee:	\$

Fourth Option

Estimated Cost:	\$
Fixed Fee:	\$
Estimated Cost Plus Fixed Fee:	\$

H-6 ON-SITE USE OF GOVERNMENT PROPERTY

It is anticipated that Government property will be used by the contractor's personnel in the performance of that portion of the contract performed on-site at the U.S. Naval Research Laboratory (NRL) including any of its field sites. Such use will be on a rent free basis and all such property shall be considered to remain in the possession and control of the NRL for property responsibility and accountability purposes.

H-7 PROTECTION OF HUMAN SUBJECTS

It is understood and agreed that in the performance of this contract the Contractor shall comply with the provisions of the following directives/regulations:

- (a) 32, Code of Federal Regulations (CFR) Part 219, *Protection of Human Subjects*;
- (b) DoD Directive 3216.2, *Protection of Human Subjects and Adherence to Ethical Standards in DoD Supported Research*, as amended;
- (c) 45 Code of Federal Regulations (CFR) Part 46, *Protection of Human Subjects*, Department of Health and Human Services; and
- (d) SECNAV INST 3900.39 (series), *Human Research Protection Program*

**PART II - CONTRACT CLAUSES
SECTION I
CONTRACT CLAUSES**

I-1 FAR 52.252-2 - CLAUSES INCORPORATED BY REFERENCE (FEB 1998)

This contract incorporates one or more clauses by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. Also, the full text of a clause may be accessed electronically at this/these address(es):

<http://www.acqnet.gov/far>
<http://heron.nrl.navy.mil/contracts/home.htm>

a. FEDERAL ACQUISITION REGULATION CLAUSES**FAR CLAUSE TITLE**

52.202-1	-	Definitions (JUL 2004)
52.203-3	-	Gratuities (APR 1984)
52.203-5	-	Covenant Against Contingent Fees (APR 1984)
52.203-6	-	Restrictions On Subcontractor Sales To The Government (SEP 2006)
52.203-7	-	Anti-Kickback Procedures (JUL 1995)

- 52-203-8 - Cancellation, Rescission, And Recovery Of Funds For Illegal Or Improper Activity (JAN 1997)
- 52.203-10 - Price Or Fee Adjustment For Illegal Or Improper Activity (JAN 1997)
- 52.203-12 - Limitation On Payments To Influence Certain Federal Transactions (SEP 2005)
- 52.204-4 - Printed Or Copied Double-Sided On Recycled Paper (AUG 2000)
- 52.204-7 - Central Contractor Registration (JUL 2006)
- 52.204-9 - Personal Identity Verification Of Contractor Personnel (NOV 2006)
- 52.209-6 - Protecting The Government's Interest When Subcontracting With Contractors Debarred, Suspended, Or Proposed For Debarment (SEP 2006)
- 52.211-15 - Defense Priority And Allocation Requirements (SEP 1990)
- 52.215-2 - Audit And Records-Negotiation (JUN 1999)
- 52.215-8 - Order Of Precedence - Uniform Contract Format (OCT 1997)
- 52.215-10 - Price Reduction For Defective Cost Or Pricing Data (OCT 1997)
- 52.215-11 - Price Reduction For Defective Cost Or Pricing Data - Modifications (OCT 1997)
- 52.215-12 - Subcontractor Cost Or Pricing Data (OCT 1997)
- 52.215-13 - Subcontractor Cost Or Pricing Data Modifications (OCT 1997)
- 52.215-14 - Integrity Of Unit Prices (OCT 1997)
- 52.215-15 - Pension Adjustments And Asset Reversions (OCT 2004)
- 52.215-17 - Waiver Of Facilities Capital Cost Of Money (OCT 1997)
(*will be included if the successful offeror does not propose facilities capital cost of money*)
- 52.215-18 - Reversion Or Adjustment Of Plans For Post-Retirement Benefits (PRB) Other Than Pensions (JUL 2005)
- 52.215-19 - Notification Of Ownership Changes (OCT 1997)
- 52.215-21 - Requirements For Cost And Pricing Data Or Information Other Than Cost Or Pricing Data - Modifications (OCT 1997) - Alternate IV (OCT 1997)
- 52.216-8 - Fixed-Fee (MAR 1997)
- 52.219-4 - Notice Of Price Evaluation Preference For HUBZone Small Business Concerns (JUL 2005) Offeror elects to waive the evaluation preference.
- 52.219-8 - Utilization Of Small Business Concerns (MAY 2004)
- 52.219-9 - Small Business Subcontracting Plan (SEP 2006) - Alternate II (OCT 2001)
- 52.219-16 - Liquidated Damages-Subcontracting Plan (JAN 1999)
- 52.222-2 - Payment For Overtime Premiums (JUL 1990) -The Use Of Overtime Is Authorized Under This Contract If The Overtime Premium Does Not Exceed "0"
- 52.222-3 - Convict Labor (JUN 2003)
- 52.222-21 - Prohibition Of Segregated Facilities (FEB 1999)
- 52.222-26 - Equal Opportunity (MAR 2007)
- 52.222-35 - Equal Opportunity For Special Disabled Veterans, Veterans Of The Vietnam Era, And Other Eligible Veterans (SEP 2006)
- 52.222-36 - Affirmative Action For Workers With Disabilities (JUN 1998)
- 52.222-37 - Employment Reports On Special Disabled Veterans, Veterans Of The Vietnam Era, And Other Eligible Veterans (SEP 2006)
- 52.222-39 - Notification Of Employee Rights Concerning Payment Of Union Dues Or Fees (DEC 2004)
- 52.223-3 - Hazardous Material Identification And Material Safety Data (JAN 1997)
- 52.223-5 - Pollution Prevention And Right-To-Know Information (AUG 2003)
- 52.223-6 - Drug-Free Workplace (MAY 2001)
- 52.223-10 - Waste Reduction Program (AUG 2000)

- 52.223-14 - Toxic Chemical Release Reporting (AUG 2003)
- 52.225-13 - Restrictions On Certain Foreign Purchases (FEB 2006)
- 52.227-1 - Authorization And Consent (JUL 1995)- Alternate I (APR 1984)
- 52.227-2 - Notice And Assistance Regarding Patent And Copyright Infringement (AUG 1996)
- 52.227-10 - Filing Of Patent Application- Classified Subject Matter (APR 1984)
- 52.227-12 - Patent Rights - Retention By The Contractor (Long Form) (JAN 1997)
(*will be included if the successful offeror is not a small business or a non-profit organization*)
- 52.228-7 - Insurance - Liability To Third Persons (MAR 1996)
- 52.230-3 - Disclosure And Consistency Of Cost Accounting Practices (APR 1998)
- 52.230-6 - Administration Of Cost Accounting Standards (APR 2005)
- 52.232-17 - Interest (JUN 1996)
- 52.232-20 - Limitation Of Cost (APR 1984) (Applicable when the contract or task order is fully funded)
- 52.232-22 - Limitation Of Funds (APR 1984) (*Applicable when the contract or task order is not fully funded*)
- 52.232-23 - Assignment Of Claims (JAN 1986) Alternate I (APR 1984)
- 52.232-25 - Prompt Payment (OCT 2003)
- 52.232-33 - Payment By Electronic Funds Transfer-Central Contractor Registration (OCT 2003)
- 52.233-1 - Disputes (JUL 2002)
- 52.233-3 - Protest After Award (AUG 1996) - Alternate I (JUN 1985)
- 52.233-4 - Applicable Law For Breach Of Contract Claim (OCT 2004)
- 52.237-2 - Protection Of Government Buildings, Equipment And Vegetation (APR 1984)
- 52.242-1 - Notice Of Intent To Disallow Costs (APR 1984)
- 52.242-3 - Penalties For Unallowable Costs (MAY 2001)
- 52.242-13 - Bankruptcy (JUL 1995)
- 52.243-2 - Changes - Cost-Reimbursement (AUG 1987) - Alternate V (APR 1984)
- 52.245-5 - Government Property (Cost-Reimbursement, Time-And-Material, Or Labor-Hour Contracts) (MAY 2004)
- 52.245-9 - Use And Charges (AUG 2005)
- 52.246-23 - Limitation Of Liability (FEB 1997)
- 52.247-1 - Commercial Bill Of Lading Notations (FEB 2006)
- 52.247-63 - Preference For U. S. Flag Air Carriers (JUN 2003)
- 52.249-6 - Termination (Cost-Reimbursement) (MAY 2004)
- 52.249-14 - Excusable Delays (APR 1984)
- 52.252-6 - Authorized Deviations in Clauses (APR 1984)(fill in Defense Federal Acquisition Regulation Supplement (48 CFR Chapter 2))
- 52.253-1 - Computer Generated Forms (JAN 1991)

b. DEPARTMENT OF DEFENSE FEDERAL ACQUISITION REGULATION CLAUSES

DFARS CLAUSE TITLE

- 252.201-7000 - Contracting Officer's Representative (DEC 1991)
- 252.203-7001 - Prohibition On Persons Convicted Of Fraud Or Other Defense Contract Related Felonies (DEC 2004)
- 252.203-7002 - Display Of DoD Hotline Poster (DEC 1991)
- 252.204-7000 - Disclosure Of Information (DEC 1991)
- 252.204-7003 - Control Of Government Personnel Work Product (APR 1992)

- 252.204-7004 - Alternate A (NOV 2003)
- 252.205-7000 - Provision Of Information To Cooperative Agreement Holders (DEC 1991)
- 252.209-7004 - Subcontracting With Firms That Are Owned Or Controlled By The Government Of A Terrorist Country (DEC 2006)
- 252.215-7000 - Pricing Adjustments (DEC 1991)
- 252.215-7002 - Cost Estimating System Requirements (DEC 2006)
- 252.219-7003 - Small Business And Small Disadvantaged Business Subcontracting Plan (DoD Contracts) (APR 1996)
- 252.219-7004 - Small, Small Disadvantaged And Women-Owned Small Business Subcontracting Plan (Test Program) (JUN 1997)
- 252.223-7006 - Prohibition On Storage And Disposal Of Toxic And Hazardous Materials (APR 1993)
- 252.225-7012 - Preference For Certain Domestic Commodities (JAN 2007)
- 252.225-7013 - Duty Free Entry (OCT 2006)
- 252.225-7031 - Secondary Arab Boycott Of Israel (JUN 2005)
- 252.225-7043 - Antiterrorism/Force Protection Policy For Defense Contractors Outside The United States (MAR 2006) (fill in : Naval Criminal Investigative Service (NCIS), Code 24, telephone, DSN 228-9113 or commercial (202)433-9113)
- 252.227-7013 - Rights In Technical Data -- Noncommercial Items (NOV 1995)
- 252.227-7014 - Rights In Noncommercial Computer Software And Noncommercial Computer Software Documentation (JUN 1995)
- 252.227-7016 - Rights In Bid Or Proposal Information (JUN 1995)
- 252.227-7025 - Limitations On The Use Or Disclosure Of Government-Furnished Information Marked With Restrictive Legends (JUN 1995)
- 252.227-7026 - Deferred Delivery Of Technical Data Or Computer Software (APR 1988)
- 252.227-7027 - Deferred Ordering Of Technical Data Or Computer Software (APR 1988)
- 252.227-7030 - Technical Data--Withholding Of Payment (MAR 2000)
- 252.227-7034 - Patents--Subcontracts (APR 1984)
- 252.227-7037 - Validation Of Restrictive Markings On Technical Data (SEP 1999)
- 252.227-7039 - Patents--Reporting Of Subject Inventions (APR 1990)
- 252.232-7003 - Electronic Submission Of Payment Requests (MAY 2006)
- 252.232-7010 - Levies On Contract Payments (DEC 2006)
- 252.235-7010 - Acknowledgment Of Support And Disclaimer (MAY 1995)
- 252.235-7011 - Final Scientific Or Technical Report (NOV 2004)
- 252.242-7004 - Material Management And Accounting System (NOV 2005)
- 252.243-7002 - Requests For Equitable Adjustment (MAR 1998)
- 252.244-7000 - Subcontracts For Commercial Items And Commercial Components (DOD Contracts) (JAN 2007)
- 252.245-7001 - Reports Of Government Property (MAY 1994)
- 252.246-7001 - Warranty Of Data (DEC 1991)
- 252.246-7003 - Notification Of Potential Safety Issues (JAN 2007)
- 252.247-7023 - Transportation Of Supplies By Sea (MAY 2002)
- 252.247-7024 - Notification Of Transportation Of Supplies By Sea (MAR 2000)
(will be included if the successful offeror made a negative response to the inquiry at DFARS 252.247-7022)

(a) *Definitions.* "Ozone-depleting substance", as used in this clause, means any substance the Environmental Protection Agency designates in 40 CFR Part 82 as –

- (1) Class I, including, but not limited to, chlorofluorocarbons, halons, carbon tetrachloride, and methyl chloroform; or
- (2) Class II, including, but not limited to, hydrochlorofluorocarbons.

(b) The Contractor shall label products which contain or are manufactured with ozone-depleting substances in the manner and to the extent required by 42 U.S.C. 7671j (b), (c), and (d) and 40 CFR Part 82, Subpart E, as follows:

WARNING

Contains (or manufactured with, if applicable) *_____, a substance(s) which harm(s) public health and environment by destroying ozone in the upper atmosphere.

*The Contractor shall insert the name of the substance(s).

PART III - LIST OF DOCUMENTS, EXHIBITS, AND OTHER ATTACHMENTS

SECTION J

LIST OF ATTACHMENTS

- J-1** Attachment (1) - Statement Of Work - 8 Pages, With Exhibit A - DD Form 1423, Contract Data Requirements List, 4 Pages.
- J-2** Attachment (2) – Personnel Qualifications - 3 Pages.
- J-3** Attachment (3) – Accounting and Appropriation Data- 1 Page. *

(* To be included at time of award)

PART IV - REPRESENTATIONS AND INSTRUCTIONS
SECTION - K
REPRESENTATIONS, CERTIFICATIONS
AND OTHER STATEMENTS OF OFFERORS OR RESPONDENTS

K-1 REPRESENTATIONS, CERTIFICATIONS, AND OTHER STATEMENTS OF OFFERORS OR RESPONDENTS

In accordance with FAR 4.1201, prospective contractors must complete electronic annual federal representations and certifications via the Online Representations and Certifications Application (ORCA) at <http://orca.bpn.gov> in conjunction with required registration in the Central Contractor Registration (CCR) <http://www.ccr.gov> database. The representations and certification must be updated as necessary, but at least annually, to ensure they are kept current, accurate and complete.

In addition, each offeror must submit completed DFARS and contract specific Representations, Certifications, and Other Statements Of Offerors or Respondents with its proposal which is available electronically in full text at <http://heron.nrl.navy.mil/contracts/repsandcerts.htm>
 Use Contract Representations and Certifications: A

K-2 FILL IN FOR FAR 52.219-1 - SMALL BUSINESS PROGRAM REPRESENTATIONS (MAY 2004)

The fill in information is as follows:

- (a) (1) The NAICS code for this acquisition is 541710.
 (2) The small business size standard is 500 employees.

SECTION L
INSTRUCTIONS CONDITIONS AND NOTICES
TO OFFERORS OR RESPONDENTS

L-1 FAR 52.252-1 SOLICITATION PROVISIONS INCORPORATED BY REFERENCE (FEB 1998)

This solicitation incorporates one or more solicitation provisions by reference, with the same force and effect as if they were given in full text. Upon request, the Contracting Officer will make their full text available. The offeror is cautioned that the listed provisions may include blocks that must be completed by the offeror and submitted with its quotation or offer. In lieu of submitting the full text of those provisions, the offeror may identify the provision by paragraph identifier and provide the appropriate information with its quotation or offer. Also, the full text of a solicitation provision may be accessed electronically at this/these address(es):

<http://www.acqnet.gov/far>
<http://heron.nrl.navy.mil/contracts/home.htm>

FAR CLAUSE TITLE

52.215-1 - Instructions To Offerors- Competitive Acquisition (JAN 2004)

52.215-5 - Facsimile Proposals (OCT 1997)

Paragraph (c) is completed as follows: (202) 767-0430 (primary) or (202) 767-0494 (alternate). In addition proposals may be transmitted by e-mail to Jamie.Brown@nrl.navy.mil (primary) or Jan.Bays@.nrl.navy.mil (alternate) in either Microsoft Word (2000 or earlier) or pdf format.

- 52.215-16 - Facilities Capital Cost Of Money (JUN 2003)
- 52.219-24 - Small Disadvantaged Business Participation Program - Targets (OCT 2000)
- 52.222-24 - Preaward On-Site Equal Opportunity Compliance Evaluation (FEB 1999)

DFAR CLAUSE TITLE

252.209-7001- Disclosure Of Ownership Or Control By The Government Of A Terrorist Country (OCT 2006)

L-2 INSTRUCTIONS FOR SUBMISSION OF PROPOSALS/OFFERS

All proposals shall be submitted in accordance with FAR 52.215-1- *Instructions to Offerors- Competitive Acquisition*. Proposals/offers submitted in paper media through the United States Postal Service (USPS) or delivery services shall be addressed:

Contracting Officer, ATTN: Code 3220.JS

RFP No. N00173-07-R-JS01

Closing Date: May 9, 2007

**Time: 4:00 pm, local
time**

**Naval Research Laboratory
4555 Overlook Avenue, S.W.
Washington, D.C. 20375**

Proposals may be hand delivered to the Contracting Office, NRL, 4555 Overlook Avenue, S.W., Washington, D.C. 20375, Building 222, Room 115 between the hours of 8AM until 4PM, local time, excluding weekends and federal holidays. NRL is a controlled-access facility. Photo identification will be required. Report first to Building 72, Visitor Control for access to NRL. After receiving a Visitor Pass, proceed directly to Building 222, Room 115, Contracting Office Receptionist to deliver the proposal. All offerors shall allow sufficient time for delivery of their proposal to the Contracting Office prior to the closing date and time announced in the solicitation. Directions and additional information about NRL is available at <http://www.nrl.navy.mil/aboutdc.htm>

If facsimile proposals are authorized, contracting officers may request offeror(s) to provide the complete; original signed proposal at a later date.

L-3 FAR 52.211-14 - NOTICE OF PRIORITY RATING FOR NATIONAL DEFENSE USE (SEP 1990)

Any contract awarded as a result of this solicitation will be a DX rated order; DO rated order certified for national use under the Defense Priorities and Allocations system (DPAS) (15 CFR 700), and the Contractor will be required to follow all of the requirements of this regulation.

L-4 FAR 52.215-20 REQUIREMENTS FOR COST OR PRICING DATA OR INFORMATION OTHER THAN COST OR PRICING DATA (OCT 1997)ALTERNATE IV (OCT 1997)

- (a) Submission of cost or pricing data is not required.

(b) Provide information described below in Section L-11.

L-5 FAR 52.216-1 - TYPE OF CONTRACT (APR 1984)

The Government contemplates award of a Cost Plus Fixed Fee Term type contract resulting from this solicitation.

L-6 FAR 52.233-2 - SERVICE OF PROTEST (SEP 2006)

(a) Protests, as defined in Section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the Government Accountability Office(GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from the Control Desk, Code 3200, Bldg. 222, Rm. 115, Naval Research Laboratory, 4555 Overlook Ave., S.W., Washington DC 20375-5326.

(b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

L-7 DFARS 252.227-7017 - IDENTIFICATION AND ASSERTION OF USE, RELEASE, OR DISCLOSURE RESTRICTIONS (JUN 1995)

(a) The terms used in this provision are defined in following clause or clauses contained in this solicitation—

(1) If a successful offeror will be required to deliver technical data, the Rights in Technical Data--Noncommercial Items clause, or, if this solicitation contemplates a contract under the Small Business Innovative Research Program, the Rights in Noncommercial Technical Data and Computer Software--Small Business Innovative Research (SBIR) Program clause.

(2) If a successful offeror will not be required to deliver technical data, the Rights in Noncommercial Computer Software and Noncommercial Computer Software Documentation clause, or, if this solicitation contemplates a contract under the Small Business Innovative Research Program, the Rights in Noncommercial Technical Data and Computer Software--Small Business Innovative Research (SBIR) Program clause.

(b) The identification and assertion requirements in this provision apply only to technical data, including computer software documents, or computer software to be delivered with other than unlimited rights. For contracts to be awarded under the Small Business Innovative Research Program, the notification requirements do not apply to technical data or computer software that will be generated under the resulting contract. Notification and identification is not required for restrictions based solely on copyright.

(c) Offers submitted in response to this solicitation shall identify, to the extent known at the time an offer is submitted to the Government, the technical data or computer software that the Offeror, its subcontractors or suppliers, or potential subcontractors or suppliers, assert should be furnished to the Government with restrictions on use, release, or disclosure.

(d) The Offeror's assertions, including the assertions of its subcontractors or suppliers or potential subcontractors or suppliers shall be submitted as an attachment to its offer in the following format, dated and signed by an official authorized to contractually obligate the Offeror:

Identification and Assertion of Restrictions on the Government's Use, Release, or Disclosure of Technical Data or Computer Software.

The Offeror asserts for itself, or the persons identified below, that the Government's rights to use, release, or disclose the following technical data or computer software should be restricted:

Technical Data or Computer Software to be Furnished With Restrictions*	Basis for Assertion **	Asserted Rights Category ***	Name of Person Asserting Restrictions****
(List)*****	(List)	(List)	(List)

- * For technical data (other than computer software documentation) pertaining to items, components, or processes developed at private expense, identify both the deliverable technical data and each such items, component, or process. For computer software or computer software documentation identify the software or documentation.
- ** Generally, development at private expense, either exclusively or partially, is the only basis for asserting restrictions. For technical data, other than computer software documentation, development refers to development of the item, component, or process to which the data pertain. The Government's rights in computer software documentation generally may not be restricted. For computer software, development refers to the software. Indicate whether development was accomplished exclusively or partially at private expense. If development was not accomplished at private expense, or for computer software documentation, enter the specific basis for asserting restrictions.
- *** Enter asserted rights category (e.g., government purpose license rights from a prior contract, rights in SBIR data generated under another contract, limited, restricted, or government purpose rights under this or a prior contract, or specially negotiated licenses).
- **** Corporation, individual, or other person, as appropriate.
- ***** Enter "none" when all data or software will be submitted without restrictions.

Date _____
 Printed Name and Title _____
 Signature _____

(End of identification and assertion)

- (e) An offeror's failure to submit, complete, or sign the notification and identification required by paragraph (d) of this provision with its offer may render the offer ineligible for award.
- (f) If the Offeror is awarded a contract, the assertions identified in paragraph (d) of this provision shall be listed in an attachment to that contract. Upon request by the Contracting Officer, the Offeror shall provide sufficient information to enable the Contracting Officer to evaluate any listed assertion.

L-8 INQUIRIES CONCERNING THE RFP

Any questions concerning the RFP must be submitted in writing to the Contracting Officer representative at the contact location noted in blocks 7 and 10 of the Standard Form 33, *Solicitation*,

Offer and Award. Offerors are cautioned against directing any questions concerning this RFP to technical personnel at the Naval Research Laboratory.

L-9 PROPOSAL ORGANIZATION

(1) Information for the technical/management proposal shall be placed in Volume I and be completely separate from the business proposal (Volume II).

(2) Proposal Format and Length - No attempt is made to restrict the proposal format and style. However, the proposal should be written and organized so as to be compatible with the RFP, the Statement of Work, company's organization and accounting structure, and proposed cost estimate. Offerors are encouraged to use recycled paper and maximize the use of double sided copying when preparing responses to solicitations.

L-10 VOLUME I - TECHNICAL/MANAGEMENT PROPOSAL

REQUIRED COPIES: 1 ORIGINAL AND 4 COPIES

(1) The offeror must propose the labor categories in accordance with the Level of Effort Breakdown in Section H. If the offeror uses labor category terminology other than that used in Section H, the offer must provide a matrix clearly relating their proposed labor categories to those stated.

(2) The following information is required for evaluation of your technical/management proposal:

QUALIFICATIONS OF PERSONNEL

- Provide resumes, previous records of experience and publication records to show the technical competency to accomplish the SOW.
- Provide documentation to support the availability of the proposed personnel to effectively achieve task assignments and on-time completion on a full-time basis.
- Provide documentation that the proposed technical team spans the total requirement of the SOW and has the experience required to successfully address the technical issues.
- Provide documentation that the proposed Project Manager is qualified to address the total scope of the SOW.

TECHNICAL UNDERSTANDING

- Demonstrate that your understanding of the SOW reveals the knowledge of achievement of task assignments and technical issues in support of multiple tasks.
- Clearly identify the offeror's intent to satisfy the "deliverables" reporting requirements in the statement of work.
- Demonstrate your technical understanding of the requirements of the tasks and the technical issues critical to success. Simply stating the offeror understands the SOW or re-stating the SOW will not be considered responsive.

MANAGEMENT/CORPORATE EXPERIENCE

- Provide documentation as to a corporate technical base to support the proposed effort and a potential expansion of the Level of Effort within the scope the scope of work.

- Demonstrate experience and maturity required to successfully manage the proposed effort.

L-11 VOLUME II - BUSINESS PROPOSAL

REQUIRED COPIES: 1 ORIGINAL AND 4 COPIES

(1) COST PROPOSAL

The offeror shall submit a business proposal that includes a cost proposal with supporting information for each cost element consistent with offeror's cost accounting system. The supporting breakdown should include such elements as materials, direct labor, indirect cost, and other costs such as travel. The offeror shall provide exhibits as necessary to substantiate each cost element. Should rates be used in the proposal which are not DCAA approved, the offeror shall provide complete documentation and the rationale for their use at time of proposal submission. However, offerors are advised to use actual labor rates of proposed personnel as the basis for estimating labor costs when practicable.

L-12 TRAVEL AND MATERIAL ESTIMATES - FOR EVALUATION PURPOSES ONLY

The travel and material set forth below must be included in each offeror's cost proposal. During the term of the contract, the contractor will be reimbursed actual and verifiable travel and material expenses.

- a) The Government estimates the travel costs for this effort to be \$25,000.00 per year.
- b) The Government estimates the material costs for this effort to be \$25,000.00 per year.
- c) The travel and material estimates are direct costs and the offeror should add applicable indirect costs, if any.

SECTION M EVALUATION FACTORS FOR AWARD

M-1 EVALUATION

Award will be made to that offeror whose proposal is determined to be the best value to the Government, proposed cost and other factors considered. The Government reserves the right to make award to other than the low offeror. The technical considerations are more important than the cost factor. The closer the technical scores of the various proposals are to one another, the more important the cost considerations become. The Technical and Cost factors are each more important than the Small Business Participation factor.

M-2 EVALUATION FACTORS FOR AWARD

Proposals will be evaluated in accordance with the following criteria. The technical factor is more important than the cost factor. The technical subfactors are listed in descending order of importance.

M-2-1. TECHNICAL/MANAGEMENT

(1) PERSONNEL QUALIFICATIONS

The proposed personnel will be evaluated on: qualifications of the proposed personnel relevant to the proposed task based upon past experience, resumes and publication records; the ability of personnel to be readily available on a permanent basis in accomplishing the SOW; the ability of all proposed personnel to fully span the total requirements; qualifications of personnel including the degree to which they meet the requirements set forth in the Personnel Qualifications, Attachment (2).

(2) TECHNICAL UNDERSTANDING

The proposals will be evaluated on the degree to which the offeror has a thorough understanding of the purpose and objectives of the scope of the task(s).

(3) MANAGEMENT/CORPORATE EXPERIENCE

The proposals will be evaluated on the degree to which the offeror demonstrates the experience and maturity necessary and required to accomplish the SOW and the potential expansion of the level of effort within the scope of work, while proposing a corporate experience in managing projects related specifically to tasks in the SOW.

M-2-2 COST TO THE GOVERNMENT

Proposed estimated cost to the Government. The Government may adjust the proposed cost for purposes of evaluation based upon an evaluation of cost realism. Cost Realism means that the costs in an offeror's proposal are realistic for the work to be performed; reflect a clear understanding of the requirements; and are consistent with the various elements of the offeror's technical proposal. The cost realism evaluation includes an analysis of the adequacy of the hours, labor mix, and other direct costs to perform the work as proposed in the technical proposal as well as the proposed labor and indirect rates. It also includes evaluation of the likelihood that the risks inherent in the offeror's technical approach will result in higher actual costs than anticipated.

M-2-3 SMALL BUSINESS PARTICIPATION

(a) The extent of participation of small businesses and historically black colleges or universities and minority institutions in performance of the contract will be evaluated on the basis of the proposed extent of participation of such firms in terms of the value of the total acquisition and the complexity and variety of the work such firms are to perform.

(b) The extent of participation of small disadvantaged business concerns in performance of the contract will be evaluated on the basis of the proposed extent of participation of such firms in terms of the value of the total acquisition and the complexity and variety of the work such firms are to perform.

M-3 FAR 52.217-5 - EVALUATION OF OPTIONS (JUL 1990)

Except when it is determined in accordance with FAR 17.206(b) not to be in the Government's best interests, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirement. Evaluation of options will not obligate the Government to exercise the option(s).

STATEMENT OF WORK

CHARCATERIZATION AND DEVELOPMENT OF NOVEL MATERIALS AND DEVICES FOR NAVAL APPLICATIONS

Introduction

The mission of the Materials Science and Technology Division (MS&TD) of the U.S. Naval Research Laboratory (NRL) is to conduct research and development (R&D) of novel materials and materials technologies for U.S. Navy (USN) and Marine Corps applications. The MS&TD's research, development and engineering efforts are exceptionally diverse in both technical content and scope.

Encompassing materials development, materials testing and analysis, failure analysis, as well as applications development, engineering and testing, the MS&TD requires both general and highly specialized technical support to meet critical mission requirements. The following Statement of Work details the research, development and engineering support required under this effort. Highly interdisciplinary in nature, this effort will require the contractor to demonstrate generalized expertise within each of the designated Task Areas and establish specific technical credentials within each of the enumerated tasks.

Scope

The contractor shall provide scientific and engineering services to (1) design, build, operate and maintain various laboratory facilities; (2) conduct basic and applied scientific research into phenomena involving many aspects of materials science and technology; and (3) provide insightful analysis and evaluations for projects and proposals.

TASK 1: Development and Application of X-ray Characterization Methods

Background:

The Naval Research Laboratory (NRL) uses x-ray methods for characterization of a wide variety of materials which are of interest to the Navy. NRL maintains laboratory capabilities at its main site and synchrotron radiation capabilities at the National Synchrotron Light Source (NSLS) at Brookhaven National Laboratory (BNL). Unique components of the facilities at BNL include a compact, modular, mirror bending and position system used for both mirrors on the hard x-ray beamline, and an ultra-high vacuum compatible fixed-exit, double-crystal monochromator. X-ray diffraction, x-ray fluorescence, x-ray absorption, and x-ray tomography are used to analyze polymers, ceramics, metals and metal alloys, thin films, organic coatings, and a variety of other materials.

The contractor shall:

1.1 Safely maintain the NRL synchrotron facilities at NSLS and make improvements as required by NRL, including design and construction of custom instrumentation, and provide scheduling, instruction, and operational assistance to users.

1.2 Design, construct, test, document, and operate unique x-ray fluorescence and x-ray absorption sensors for Navy applications.

1.3 Collect and analyze x-ray fluorescence and x-ray absorption spectra for Navy applications.

1.4 Design, code, test, and document software for data collection, data analysis, and simulation for x-ray experiments and beam line facilities operations.

TASK 2: Thin Film Deposition

Background:

The Naval Research Laboratory (NRL) uses thin film deposition techniques such as pulsed laser deposition (PLD), ion-beam assisted deposition (IBAD) and others, to prepare samples for characterization and/or components or devices. Materials of interest to the Navy include conductors, insulators, glasses, semi-conductors, ferro-electrics, ferrite, superconductors, metals, polymers, organics, and composites and nanocomposites of any of these materials.

The contractor shall:

2.1 Provide maintenance and minor assembly of systems components, installation of vacuum gauges, pumps, etc. on thin film deposition equipment owned by NRL.

2.2 Fabricate thin films of selected materials, such as polymers, metals, ferroelectrics, ferrites, and various oxide ceramics, utilizing thin film deposition equipment provide by NRL.

2.3 Maintain and operate laser systems and design and build optical layouts required for thin film deposition.

2.4 Perform or assist in the characterization of thin films by various techniques such as x-ray diffraction, 4-point probe and electron microscopy.

TASK 3: Multifunctional Materials

The Naval Research Laboratory (NRL) conducts basic and applied research in order to understand the interplay between structural and functional properties of polymers, metals, alloys, ceramics, and composites. NRL works to establish a technology base to promote rapid insertion of advanced multifunctional materials into Navy systems by developing predictive models and materials characterization techniques, and nondestructive evaluation methods for material structures, and by designing and fabricating prototypes of components and systems.

The contractor shall:

3.1 Synthesize materials and devise experiments to investigate their mechanical and functional properties from the nanometer to macroscopic scale.

3.2 Characterize multifunctional materials and structures under a wide range of load and drive conditions.

3.3 Develop theoretical and numerical approaches to continuum mechanics to analyze and predict structural properties such as critical strength, fracture toughness, fatigue, and crack growth.

3.4 Devise physics-based models to understand the coupling of electrical, magnetic, and thermal properties to structure, in materials exhibiting piezoelectric, magnetostrictive, and shape memory behavior.

Task 4: Optical Properties of Materials

Background:

NRL investigates the basic properties of nonlinear optical materials and nanostructured devices. Materials and device physics, in particular the interaction between the photons and electrons are investigated. Example projects include the development of various sensors based on nonlinear optical materials and quantum dots. Investigations of materials and devices occur over the frequencies from DC through terahertz. Some experiments require the use of various lasers including class-4 lasers.

The contractor shall:

4.1 Investigate the properties of electro-optic (EO) materials, including the electronic, optical and crystallographic properties. The contractor shall also conduct experiments on EO materials, quantum dots and quantum chaos devices provided by NRL and analyze the acquired data for the purposes of publication. The contractor shall also operate and maintain experimental equipment to support these investigations, such as optical components,

cryogenic and electronic test instrumentation, radiation sources and detectors, and automatic-data-processing software and equipment. The contractor may be required to fabricate pieces of test instrumentation and purchase small components and minor pieces of equipment for delivery to NRL and provide materials in support of the statement of work.

4.2 Conduct theoretical investigations of nonlinear optical effects, photon absorption processes in quantum dots and 2 dimensional electron gas (2 DEG) materials as functions of temperature and the photon frequency in order to interpret microwave and terahertz photon detection experiments in quantum dots.

4.3 Investigate the status of applied EO devices for high power microwave experiments. Construct theoretical models of high power microwave experiments, and perform microwave field mapping in a confined 3-dimensional space by means of electro-optic field sensors.

Task 5: THz and Microwave Interactions

Background:

NRL investigates the basic properties of nonlinear optical materials and nanostructured devices. Materials and device physics, in particular the interaction between the photons and electrons are investigated. Example projects include the development of various sensors based on nonlinear optical materials and quantum dots. Investigations of materials and devices occur over the frequencies from DC through terahertz. Some experiments require the use of various lasers including class-4 lasers.

The contractor shall:

5.1 Conduct experiments to obtain terahertz spectra of various chemicals and materials, maintain the terahertz spectrometer, and upgrade the spectroscopy software. The contractor shall compile all available terahertz spectra and build up a database of terahertz spectra for materials provided by NRL.

5.2 Conduct nonlinear photonic interaction studies with electro-optic and other materials, with a view to developing high-sensitivity THz radiation detectors and efficient sources of continuous wave (cw) and pulsed THz electromagnetic beams. The contractor shall plan and carry out experiments; analyze the data obtained; perform theoretical modeling, such as the photonic bandgap in photonic crystals and nonlinear subharmonic frequency generation; and prepare the results for publication in conference proceedings and refereed journals. The contractor shall also maintain and fabricate test equipment.

5.3 Conduct microwave interaction studies with electronic materials, components, and cavities; develop diagnostic systems; develop or utilize theories such as chaos-assisted tunneling, with or without time reversality; prepare the results of the study for publication; and operate and maintain equipment to support the microwave experiments, such as microwave sources and detectors, electronic test instrumentation, and computer systems. The contractor shall also carry out computer simulations of microwave scattering and propagation, write or modify computer codes, analyze and display the results.

Task 6: Laser Effects

Background:

NRL investigates the basic properties of nonlinear optical materials and nanostructured devices. Materials and device physics, in particular the interaction between the photons and electrons are investigated. Example projects include the development of various sensors based on nonlinear optical materials and quantum dots. Investigations of materials and devices occur over the frequencies from DC through terahertz. Some experiments require the use of various lasers including class-4 lasers.

The contractor shall:

6.1 Conduct interaction experiments and theoretical studies to determine the response of materials and/or systems to the radiation, analyze the experimental data, and prepare the results for publication. The principal focus will be on materials and systems intended to protect DoD personnel and assets from threat lasers. The contractor shall also operate and maintain the equipment for the experiment, such as laser sources and accessories, electronic test instrumentation, target materials, and automatic data-processing software.

The contractor shall also support the development of laser diagnostic systems, conduct experiments to evaluate their performance, generate software for data analysis, and perform analyses of the data.

6.2 Continue the development of materials for laser eye protection, such as the DELEP (Damage-Enhanced Laser Eye Protection) materials developed at NRL, engage in theoretical analyses of the effectiveness of laser protective materials, and continue the development of laser dosimeter devices.

6.3 Support NRL research under the Army TARDEC project by analyzing and evaluating the TARDEC Vision Protection project plan, identifying technology readiness levels and gaps between the program goals and the actual program as it is being executed. The contractor shall recommend a plan to coordinate efforts and fill discovered gaps between the projects goals and the likely results of the current project plan. The contractor's recommended plans shall contain the following items:

Interim Reports including but not limited to:

- Documentation of current technology within a roadmap for optical limiter technology development,

- Evaluation of technology maturity using the US Army Technology Readiness Level rating scale,

- Assess applicability/compatibility of existing efforts to ground based optical surveillance and targeting systems.

Final Report to include a compilation of Interim Reports plus:

- Identify technologies that are missing or requiring accelerated development,

- Program planning recommendations for technology/system development.

Task 7: Superconductivity

The contractor shall:

7.1 Maintain an experimental program for the search of novel superconductors. Appropriate data are collected by members of NRL Code 6300 on samples prepared within and without NRL. The contractor shall analyze the data provided, study the temperature and magnetic dependences of the data, and decide whether or not old models of superconductivity apply or whether departures are called for.

7.2 Evaluate proposals in the area of superconductivity and microcircuits provided by NRL. Proper evaluation requires extensive knowledge of Navy-related current activities in superconductivity and micro-electronics.

Task 8: Ion Beam Studies

Background:

Experimental and theoretical research is being performed at NRL based on interactions between ion beams and materials. In this work, there are two principal objectives. One is to assess the effects of ion irradiation on the functional properties of materials, and of devices fabricated with advanced materials for Department of Navy applications. The other is to employ ion beams to quantify the composition of materials, using techniques such as Rutherford Backscattering Spectrometry (RBS), Elastic Recoil Detection Analysis (ERDA), Particle Induced X-ray Emission (PIXE), and Accelerator Mass Spectrometry (AMS).

The contractor shall; (1) provide personnel with experience in high energy ion implantation and ion beam analysis, capable of performing RBS, elastic recoil analysis, channeling, and trace element accelerator mass spectrometry of specimens of many types of materials; (2) shall provide personnel to construct specialized instrumentation and equipment for use on the Pelletron accelerator.

8.1 Ion Beam Characterizations

The contractor shall perform element and isotope concentration and depth profile analyses on selected samples using accelerator-based analysis techniques. The contractor shall also perform ion irradiations of selected samples to assess the effect of such irradiation on material properties. The samples shall be furnished by the U.S. Government as they are produced by various research programs conducted by the Naval Research Laboratory. Samples will consist of research materials of insulating, semiconducting, and conducting thin films as well as other materials. Other materials consist of geological, biological, petrologic, medical and forensic samples. The contractor shall utilize the 3 MV Tandem Pelletron facility of NRL in the characterization of the material, and provided computers for analysis of the data and preparation of reports describing the results of the effort. During the conduct of this research, the contractor will be provided with office space to analyze data and prepare reports. The work will be conducted on a continuing basis throughout the period of the contract. The contractor will normally provide specimen analysis results within one week of receipt of specimens.

8.2 Instrument Construction and Repair

The contractor shall design, fabricate, test, implement and repair electronic equipment and systems used in operations of the ion beam facility at NRL. Equipment employed by the facility includes high voltage and high current power supplies; detection, telemetry, and control systems; solid state circuits; analog, digital, and optical components; high vacuum systems, and safety interlock systems. The contractor shall use test equipment provided by NRL to assess and maintain electronic components used in the ion beam facility, and shall use circuit design tools provided by NRL to develop new electronic components for use in the facility. The contractor shall provide written descriptions of the components fabricated, and modifications made to existing components, using office space and supplies provided by NRL. The work will be conducted on a continuing basis throughout the period of the contract. Some necessary parts may need to be provided by the contractor.

8.3 New Instrumentation

The contractor shall provide design and operation of electronics test equipment, instrumentation, power supplies and magnet assemblies associated with charged particle accelerators, and shall construct specialized equipment, which consists of custom electronic circuits fabricated as needed to provide detection, control, and monitoring needs for future experiments.

Task 9: Program Integration, and Reporting

Background:

The breadth and scope of the MS&TD's research and development activities require substantial support with technical backup and assistance in program coordination. This support is critical to the successful coordination of these research efforts within the Navy, and between the Navy and other Federal and State agencies, as well as academic and private sector parties and appropriate professional societies. The MS&TD's requirements within this Task are as follows:

9.1 Contract Administration Support - The contractor shall provide all requisite administration support required to conduct this effort.

9.2 Travel - The contractor shall, as needed, attend off-site locations including, but not limited to: professional society meetings; technical review meetings and workshops; and planning and coordination meetings. The intent is to enhance the near- and far-term performance of the subtasks listed under Tasks 1-8 above.

PERSONNEL QUALIFICATIONS

TASK 1: Development and Application of X-ray Characterization Methods

Research Physicist

Education: Ph.D. in Physics, Materials Science, or a related field

Experience: Four (4) or more years of experience conducting synchrotron-based x-ray characterization of materials

Senior Research Physicist

Education: Ph.D. in Physics, Materials Science, or a related field

Experience: Eight (8) or more years of experience conducting synchrotron-based x-ray characterization of materials, and designing and operating synchrotron-beamline x-ray scattering equipment.

TASK 2: Thin Film Deposition

Senior Research Physicist/Engineer

Education: MS. or Ph.D. in Physics, Electrical Engineering, Materials Science, or a related field.

Experience: Must have six (6) years experience with laser-based optical systems and their application to thin film deposition and laser machining. Required skills include the ability to design, build, and operate specific laser systems for thin-film deposition and direct-write of electrical circuits.

TASK 3: Multifunctional Materials

Senior Mechanical/Materials Research Engineer

Education: Ph. D. in Mechanical Engineering, Materials Science, or equivalent

Experience: Four (4) or more years of experience conducting basic research on any of synthesis, testing, or modeling of advanced materials.

Mechanical/Materials Engineer

Education: BS. in Mechanical Engineering, Materials Science, or equivalent

Experience: Must be familiar with any of synthesis, characterization, or modeling of advanced materials; or design and fabrication of prototypes for components and systems.

Technician

Education: High School diploma (or equivalent) and advanced technical training diplomas

Experience: Non-degreed technician to support fabrication and testing of multifunctional materials or multifunctional materials applications, or design and fabrication of prototypes for components and systems.

Task 4: Optical Properties of Materials

Senior Research Physicist

Education: Ph.D. in Physics, Materials Science, or a related field

Experience: Must have four (4) or more years of experience and be familiar with cryogenic and vacuum system, optics, and materials research; or must be familiar with the nonlinear properties of electro-optic and photonic materials; or must be knowledgeable about microwave interactions with electronic materials, components and cavities, including wave chaotic processes. Employee should possess knowledge and skills to handle lasers. Must also have demonstrated a publication record in these fields of research.

Task 5: THz and Microwave Interactions

Research Physicist

Education: Ph.D. in physics, materials science or a related field.

Experience: Must be familiar with cryogenic and vacuum systems, optics, and materials research; or must be familiar with the nonlinear properties of electro-optic and photonic materials; or must be knowledgeable about microwave interactions with electronic materials; components, and cavities, including wave chaotic processes. Employee should possess knowledge and skills to handle lasers. Must also have demonstrated a publication record in these fields of research.

Task 6: Laser Effects

Senior Research Physicist

Education: Ph.D. in theoretical physics or chemistry

Experience: Must have seven (7) or more years of experience in optical properties of free excitons, localized excitons, exciton complexes and electron-hole pairs in nanocrystal quantum dots, theoretical techniques for using the multiband effective mass approximations for studying the level structure in heterostructure quantum dots, with calculations of the Zeeman effect, with the modern methods for describing biexcitons and trions, and be familiar with the published literature in this area. Experience with laser protection is desirable.

Task 7: Superconductivity

Senior Research Physicist

Education: Ph.D. in physics or chemistry

Experience: Must have at least ten (10) years of experience in superconductivity and micro-circuitry and be familiar with published literature in these areas. Knowledge of exchange spin-spin interactions and Auger processes in semiconductor quantum dots is helpful.

Task 8: Ion Beam Studies

Technician

Education: High school and advanced technical-training diplomas.

Experience: Must be skilled in electronics for designing, fabricating, testing, implementing and repairing equipment and systems. Experience with high voltage and high current power supplies, solid state circuit design, and high vacuum systems is important.

Research Physicist

Education: M.S. or Ph.D. in physics.

Experience: Must be skilled in the use of ion beams, and their interactions with materials; must also have an established publication record in this field.